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PLANTAE MEXICANAE X

BY

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NEW OR CRITICAL SPECIES FROM OAXACA

DURING the course of recent botanical and ethnobotanical studies made in the northeastern districts of the State of Oaxaca, Mexico, a number of rare or hitherto undescribed plants were collected, some of which are of economic importance among the Indians of this region. It has also seemed advisable to discuss several of these plants because of their taxonomic, phytogeographical, or ethnobotanical interest.

In the following treatment, the families are arranged in accordance with the botanical sequence proposed by Engler-Gilg.

All of the localities mentioned in this article are indicated on the map of northeastern Oaxaca which was published in the Botanical Museum Leaflets, Harvard University 9 (1941) 109.

I wish to thank Doctor Paul C. Standley of the Field Museum of Natural History, Doctor C. L. Lundell of the University of Michigan and Doctor W. H. Camp of the New York Botanical Garden for permission to publish their manuscript descriptions and comments.

PINACEAE

Pinus Strobus *Linnaeus* var. **chiapensis** *Martínez* in An. Inst. Biol. 11 (1940) 81.

MEXICO: Oaxaca, District of Cuicatlán, between San Juan Zautla and San Pedro Teutila, long. 96°38′, lat. 17°58′, alt. 850 m., July 1, 1939, *Schultes 765* (Econ. Herb. Oakes Ames No. 9282; Herb. Arnold Arb.).

This endemic variety of *Pinus Strobus* was described in 1940 from several collections which were made in the extreme western part of Chiapas. The collection cited above represents a considerable extension of range northwestward.

Pinus Strobus var. *chiapensis* is very distinct from the other pines of northeastern Oaxaca. It is tall and has a straight and smooth trunk which lacks branches near the base. *Schultes 765* was collected in an extensive forest which is a pure stand of this variety.

PALMAE

Geonoma binervia *Oersted* in Vidensk. Meddel. Kjöbenhavn (1859) 33.

MEXICO: Oaxaca, District of Villa Alta, Los Llanos de Ozumazín, long. 96°10′, lat. 17°42′, alt. 300 m., April 29, 1939, *Schultes & Reko 704* (Bailey Hort.).

Geonoma binervia has hitherto not been reported from Mexico. It has been known from Guatemala, Nicaragua, Costa Rica, and Panama (L. H. Bailey in Gentes Herb. 3 (1933) 78-9).

CYCLANTHACEAE

Carludovica Labela *R.E.Schultes sp. nov.*

Planta acaulescens, terrestris vel epiphytica. Petiolus tenuis, basi dilatatus. Folium bipartitum, plusminusve 50 cm. longum; folii segmenta oblanceolata, acuminata, plusminusve 10 cm. lata. Spadix masculinum quam femineum majus. Florum masculinorum pedicellus complanatus, abrupte dilatatus, receptaculum planum formans; receptaculum intus truncatum, extus cum octo perianthii segmentis ovatis, obtusis liberisque; stamina duodecim usque ad viginti, receptaculum tegentia; antherae paene subsessiles, in circuitu late oblongae. Florum femineorum perianthii segmenta octo, triangulari-ovata, acutiuscula liberaque; stigmata carnosa, cruciformia, in circuitu oblonga. Staminodia filiformia, plusminusve 4 cm. longa.

An acaulescent, terrestrial or epiphytic plant up to nearly 1 meter in height. Petioles slender, dilated at the base, 28–40 cm. long. Leaves 46–53 cm. long, bipartite for two thirds or more of their length, prominently 3-nerved, the mid-nerve a common mid-rib; segments of the leaves oblanceolate, acuminate, 7–13 cm. wide. Staminate inflorescences borne on a stout stem 12–18 cm. long with four large, lanceolate, acuminate, unequal, foliaceous spathes which are 4–10 cm. long and 1–1.5 cm. wide, the lowest one closely enclasping the spike. Pistillate inflorescences borne on a more slender, shorter stem about 5 cm. long with four large, foliaceous spathes. Staminate spadix 4–5 cm. long; the pistillate 2.5–3 cm. long. Pedicel of the staminate flower flattened, abruptly dilated into a flat receptacle which is about 3 mm. in diameter, truncate on the inner side, bearing eight perianth segments on the outer side; segments ovate, obtuse, free, about 1.5 mm. long, 0.5 mm. wide. Stamens twelve to twenty, completely covering the flat receptacle; anthers broadly oblong in outline, each about 1 mm. long, 0.5 mm. wide, almost subsessile, with a filament about 0.2 mm. long. Perianth segments of the pistillate flower eight, triangularly ovate, acutish, free, about 1.2 mm. long, 0.5 mm. wide, exceeding the stigmas. Stigmas fleshy, cruciform, 0.8 mm. long, 0.6 mm. wide, green; staminodia filiform, 3.5–4.5 cm. long.

MEXICO: Oaxaca, District of Choapam, on floor of dark rain-forest or on rotten logs, summit of the mountains between Santa María

Yahuivé and Santiago Yaveo, long. 95°45′, lat. 17°20′, alt. 1000 m., May 15, 1939, *Richard Evans Schultes & Blas Pablo Reko 920* (TYPE in Econ. Herb. Oakes Ames No. 1070, 1070a; ISOTYPE in Herb. Gray); Vera Cruz, on moist rocks, Zacuapán, May 1917, *C. A. Purpus 7839* (U.S. Nat. Herb. No. 884563).

The genus *Carludovica* has not hitherto been authentically attributed to Mexico. Nearly a century ago, Liebmann collected several different species in northeastern Oaxaca belonging to this genus, but apparently never described them. In 1909, Rovirosa reported that *Carludovica utilis* Benth. occurs in Tabasco. I have been unable to find herbarium material from Tabasco to substantiate this statement, though the genus should be expected to occur there. Recently, Martínez (*Las plantas mas utiles que existen en la Republica Mexicana* (1928) 239-242) has indicated that *Carludovica palmata* Ruiz & Pav., the Panama hat plant, occurs in southern Mexico, but this refers to a cultivated introduction and not to a native element of the flora.

In the locality where the type of *Carludovica Labela* was collected, the plant occurs in great abundance as an epiphyte on fallen trees or terrestrially on the damp floor of the dark rain-forest. In the Districts of Choapam and Tuxtepec, the plant is known as *rabo de bobo* ("fish-tail") because of the characteristic bifid leaf. It is also known by the Mije name *kosh-tu-see*; by the Chinantec names *gua-ma-sin* and *ma-la*; and by the Zapotec name *la-be-la.* The Zapotec name, which, like the Spanish vernacular name, means "fish-tail", is given to this plant as the specific epithet.

Among the Indians of northeastern Oaxaca, the leaves of *Carludovica Labela* are gathered in large quantities and are used, sometimes with the leaves of species of *Chamaedorea* and other low palms, as thatching for native houses. The broad, long, flat leaves with numerous fine, parallel veins make one of the best of thatches. There is no other use known for this plant in northeastern Oaxaca, but other species of *Carludovica* find extensive use in Central America in the manufacture of hats and matting.

BROMELIACEAE

Vriesia Malzinei *E. Morren* in Belg. Hort. 24 (1874) 313.

MEXICO: Oaxaca, District of Tuxtepec, Cerro Naríz, San Felipe Usila, long. 96°32′, lat. 17°50′, alt. 350 m., April 19, 1939, *Schultes & Reko 666* (Herb. Gray).

This collection of *Vriesia Malzinei* apparently is the first made since the type was collected at Cordova, Vera Cruz, in 1874. Smith (No. Am. Fl. 19 (1938) 158) states in regard to this species: "known only from the type locality, but introduced into cultivation." This plant appears to be rare in the District of Tuxtepec where it is known by the Chinantec name *lee-se*.

ANNONACEAE

Guatteria Galeottiana *Baillon* in Adansonia 8 (1868) 268.

MEXICO: Oaxaca, District of Choapam, between Santiago Choapam and San Juan Teotalcingo, long. 95°51′, lat. 17°18′, alt. 1100 m., June 1, 1939, *Schultes 560* (Econ. Herb. Oakes Ames No. 2701; Herb. Gray); District of Choapam, Santo Domingo Latani, long. 95°48′, lat. 17°24′, alt. 900 m., May 13, 1939, *Schultes & Reko 906* (Econ. Herb. Oakes Ames No. 2700).

Guatteria Galeottiana has been known only from collections made by Galeotti in 1839 and by Liebmann in 1842: *Galeotti 4603*, Chinantla; *Liebmann 16*, San Juan Comaltepec; *Liebmann 17*, San Juan Teotalcingo ("Tuitalungo"); *Liebmann 18*, San Juan Lovani ("Lobani"). It is apparently a local endemic restricted to the Chinantla. It is interesting to note in this connection that the only other species—*Guatteria Jurgensenii* Hemsley—

in the section *Leptophyllum* is also endemic to this region of Oaxaca.

In his recent *Revision der Arten einiger Annonaceen Gattungen IV* (Bergiani 12 (1939) 373), Fries gives "southern Mexico" as the range of *Guatteria Galeottiana,* but fails to emphasize its restricted distribution within this area.

In San Juan Teotalcingo, where *Guatteria Galeottiana* is known by the Chinantec Indian name *ma-hún-sei*, the dried fruits are said to be crushed and added to soups, coffee and other beverages as a rather peppery and aromatic condiment.

The plate which accompanies these notes was drawn from *Schultes 560.*

LAURACEAE

Phoebe chinantecorum *R. E. Schultes sp. nov.*

Arbor parva, gracilis debilisque, circiter 6 m. alta. Ramuli dense villosi, ferrugineis cum pilis. Folia lanceolato-elliptica, apice in cuspidem vel mucronem angustum acutissimum usque ad 1–2 cm. longum producta, basi attenuata, cuneata, breviter petiolata, 12–20 cm. longa, 3.5–5.5 cm. lata, coriacea, supra nitidissima, olivacea, glabra vel sparsissime pubescentia, subtus opaca, ferruginea, omnino dense villoso-sericea cum pilis simplicibus et debilibus, plusminusve 0.8 mm. longis. Inflorescentiae numerosae, saepissime axillares confertim paniculatae, multiflorae, foliis breviores. Flores hermaphroditi, brunnei. Perianthium brunneum, perianthii segmenta elongato-ovata, apice rotundata vel subacuta, subaequalia, crassa, extus glabrescentia, intus cinereo-tomentosa. Antherae in serie exteriore sessiles, in circuitu rotundato-ovatae, inflexae, glabrae. Ovarium subrotundatum, brevi cum stylo.

A small, slender, weak tree about six meters high.

Branches terete or subangulate, densely villous with rust-colored hairs. Leaves opposite or subopposite, lanceolate-elliptic, often slightly asymmetrical, apically prolonged into an acuminate point which is 1–2 cm. long, basally cuneate, short-petiolate (petioles 0.5–1 cm. long), 12–20 cm. (usually about 15 cm.) long, 3.5–5.5 cm. wide, coriaceous; upper surface very lustrous, olive-green, glabrous or very sparsely pubescent, mid-rib and secondary veins strongly impressed; lower surface rust-colored, entirely and densely villous-sericeous with simple, weak hairs; mid-rib prominently elevated and very densely villous-sericeous; secondary veins conspicuous, arcuate. Inflorescences numerous, usually axillary, compactly paniculate, many-flowered, shorter than the leaves (peduncles 3.5–6 cm. long; pedicels very slender, up to 1.5 mm. long), appressed puberulent, rust-colored, 1.5–3 cm. wide. Flowers hermaphroditic, 4.6 mm. in diameter (natural size), brown. Perianth brown; perianth segments elongate-ovate, apically rounded or subacute, fleshy, subequal, 2.2 mm. long, 0.9 mm. wide, externally glabrescent, the outer three internally ashy tomentulose, the inner three internally glabrescent. Anthers of the outer series sessile, rectangular-quadrate in outline, inflexed, about 0.7 mm. wide, 0.8–0.9 mm. long, glabrous; those of the inner series triangular in outline. Staminodia six, globose, minute. Ovary subrotundate, glabrous, surrounded by a disc-like margin bearing three minute glands, surmounted by a short style about 0.5 mm. long.

Mr. William S. Benninghoff has examined the pollen of this species and has prepared the following description of it: "Grains spherical; average diameter 24.5 μ; exine thin and covered with short, blunt, conical spines approximately 0.8 μ long; intine thick and clear; pores or furrows absent; contents finely granular, nuclei prominent in fresh material."

Mexico: Oaxaca, District of Choapam, San Juan Lalana, growing in rain-forests on the slopes of Cerro Lalana, long. 95°45′, lat. 17° 25′, alt. 550 m., May 8, 1939, *Richard Evans Schultes & Blas Pablo Reko 827* (Type in Econ. Herb. Oakes Ames No. 7111; Isotypes in Herb. Gray; Herb. Inst. Biol. [Mexico]; Herb. Univ. Michigan; Herb. Field Mus. Nat. Hist.; Herb. U.S. Nat. Mus.; Herb. Bot. Gard. Buitenzorg.)

Phoebe chinantecorum appears to be most closely related to *P. nectandrioides* Mez and *P. betazenis* Mez (the type of which was collected in northeastern Oaxaca) which occur in southern Mexico and adjacent Central America. It is also apparently allied to *Phoebe helicterifolia* (Meissn.) Mez of Chiapas and Guatemala. Vegetative characters in the shape and indument of the leaves as well as floral characters, especially in the shape of the anthers, serve to distinguish between these species.

Phoebe chinantecorum is strikingly similar in habit to some species of *Nectandra*, especially to some of those in the subgenus *Eunectandra* Nees, section *Pomatium* (Nees) Mez.

In the forests around San Juan Lalana, *Phoebe chinantecorum* is abundant and is closely associated with the following trees: *Alibertia edulis* (L. Rich.) A. Rich., *Andira Galeottiana* Standl., *Beilschmiedia mexicana* (Mez) Kosterm., *Conostegia mexicana* Cogn., *Erythroxylon lucidum* HBK., *Guatteria* spp., *Hamelia nodosa* Mart. & Gal., *Hirtella americana* Aubl., *Laplacea semiserrata* (Mart. & Zucc.) Cambess., *Miconia* spp., *Ormosia isthmensis* Standl., *Ternstroemia Tepezapote* Schlecht. & Cham., and many other species.

The Chinantec Indians of the District of Choapam are accustomed to use the reputedly small and rather aromatic fruits of *Phoebe chinantecorum* for food, and call the plant *mo-gwu*.

Connarus Schultesii *Standley sp. nov.*

Frutex scandens, ramis crassiusculis fusco-brunnescentibus teretibusque, primo ut videtur tomentosis sed cito glabratis, internodiis abbreviatis; folia modica pinnatim trifoliolata, petiolo 2.5–5.5 cm. longo tereti glabrato, rhachide vix ultra 8 mm. longa, petiolis crassis 3–5 mm. longis; foliola subaequalia, subcoriacea, anguste oblonga vel oblanceolato-oblonga, plerumque 10–13 cm. longa et 3–4 cm. lata, subabrupte acuminata, acumine ipso obtuso, basim obtusam versus paullo angustata, in statu adulto glabra, supra in sicco subcinerea, costa nervisque non elevatis, sublucida, subtus fere concoloria, costa tenera elevata, nervis lateralibus utroque latere circa novem teneris, subarcuatis, angulo semirecto vel latiore adscendentibus, prope marginem irregulariter arcuato-junctis, venis prominentibus laxe reticulatis; flores ut videtur in paniculas racemiformes dispositi, paniculis terminalibus e basi ramosis, usque ad 13 cm. longis, divaricato-ramosis, ramis gracilibus rigidiusculis, primo dense brunneo-tomentosis, glabrescentibus, floribus breviter crasseque pedicellatis; folliculi insigniter asymmetrici, fere semiorbiculares, circa 2.5 cm. longi et 1.5 cm. lati, subcompressi, basi in stipitem crassum usque ad 7 mm. longum contracti, apice obtusi apiculatique, ubique densissime pilis longiusculis dense intertextis brunneis hispido-tomentosi.

A scandent shrub, the branches rather stout, blackish brown, terete, apparently at first tomentose but soon glabrate, the internodes short; leaves medium-sized, pinnately 3-foliolate, the petiole 2.5–5.5 cm. long, terete, glabrate, the rachis barely 8 mm. long, the petiolules thick, 3–5 mm. long; leaflets subequal, subcoriaceous, narrowly oblong or oblanceolate-oblong, mostly 10–13

cm. long and 3–4 cm. wide, rather abruptly acuminate, with an obtuse tip, slightly narrowed toward the obtuse base, glabrous at maturity, dark above when dried, slightly lustrous, the venation not elevated, almost concolorous beneath, the slender costa prominent, the lateral nerves about nine on each side, slender, subarcuate, ascending at an angle of forty-five degrees or more, irregularly arcuate-anastomosing near the margin, the prominent veins laxly reticulate; flowers apparently in raceme-like panicles, the panicles terminal, branched from the base, up to 13 cm. in length, divaricately branched, the branches rather stiff, slender, at first densely brown-tomentose, becoming glabrate, the flowers borne on short, thick pedicels; follicles conspicuously asymmetric, almost semiorbicular, about 2.5 cm. long and 1.5 cm. broad, subcompressed, contracted at the base into a thick stipe which is 7 mm. long or less, obtuse and apiculate at the apex, densely hispid-tomentose with rather long, densely matted, brown hairs.

MEXICO: Oaxaca, District of Choapam, San Juan Lalana, a tangled vine growing on large forest trees, long. 95°45′, lat. 17°25′, alt. 700 m., May 9, 1939, *Richard Evans Schultes & Blas Pablo Reko 833* (TYPE in Herb. Field Mus. Nat. Hist.; ISOTYPES in Econ. Herb. Oakes Ames No. 8613; Herb. Gray).

In connection with the description of *Connarus Schultesii*, Dr. Standley writes: "The only representative of the genus recorded previously for Mexico is *Connarus lentiginosus* Brandegee, of which, through oversight, no mention is made in Trees and Shrubs of Mexico. That species, of Chiapas, differs in having more numerous leaflets, and is evidently not closely related to this plant of Oaxaca. While a respectable number of *Connarus* species are known from Central America, none of them have fruit similar to that of *C. Schultesii*, whose indument is exceedingly dense, brown and coarse. The follicles also are larger than is usual in the genus."

The reddish sap which exudes when the stems of this vine are broken is extremely bitter. A decoction made of the stems of *Connarus Schultesii* is said to be used locally by the Chinantecs of the District of Choapam as a taenifuge. In this connection, it is significant that a species of *Connarus* is similarly employed by primitive peoples in various parts of Africa (Heckel & Schlagenhauffen in Ann. Fac. Sci. Marseilles 6, fasc. 2 (1897) 1-26).

LEGUMINOSAE

Erythrina horrida *DeCandolle* Prodr. 2 (1825) 413.

MEXICO: Oaxaca, District of Ixtlán, Santa Mariá Jaltianguis, long. 96°32′, lat. 17°21′, alt. 2000 m., June 20, 1939, *Schultes 644a.*

This species of *Erythrina* is known only from the State of Oaxaca. Krukoff (*The American species of Erythrina* in Brittonia 3 (1939) 259) cites ten collections. However, none of these are from the northeastern part of the state where *Schultes 644a* was collected. In the District of Ixtlán, *Erythrina horrida* is called *sompantle.*

Erythrina mexicana *Krukoff* in Brittonia 3 (1939) 309.

MEXICO: Oaxaca, District of Tuxtepec, Cerro Verde near San Felipe Usila, long. 96°34′, lat. 17°51′, alt. 300 m., April 19, 1939, *Schultes & Reko 687*; District of Choapam, near Río Chisme, Santiago Yaveo, long. 95°41′, lat. 17°20′, May 30, 1939, *Schultes & Reko 952.*

Erythrina mexicana, known from Mexico (San Luis Potosí, Guerrero) and Guatemala, has previously not been reported from Oaxaca where, in the Districts of Tuxtepec and Choapam, it is the commonest species of the genus. It is known by the Spanish names *colorín* and *sompantle*, by the Chinantec *ma-nya*, and by the Zapotec *betutsa-gitse*.

Ormosia isthmensis *Standley* in Field Mus. Nat. Hist. Bot. Ser. 17 (1937) 264.

Mexico: Oaxaca, District of Juchitlán, Ubero, alt. 30-90 m., June 1937, *Llewelyn Williams 9423*; District of Choapam, San Juan Lalana, long. 95°45′, lat. 17°25′, alt. 550 m., May 8, 1939, *Schultes & Reko 822*; District of Choapam, Santiago Yaveo, long. 95°41′, lat. 17°20′, alt. 450 m., May 1939, *Reko s.n.* (seeds); Vera Cruz, Fortuño Coatzacoalcos River, alt. 30-50 m., February-March 1937, *Llewelyn Williams 8926*.

Although it is a very tall and conspicuous tree, often attaining a height of 125 feet, *Ormosia isthmensis* was not collected until very recently. It has apparently been collected only four times. According to the field notes which accompany *Llewelyn Williams 8926* and *9423*, it is relatively abundant in Ubero and at Fortuño Coatzacoalcos River, both of which localities are on the Isthmus of Tehuantepec. In the District of Choapam, immediately northwest of the Isthmus, however, *Ormosia isthmensis* is a rarity, occurring sporadically in the forests. Dr. Reko procured seeds of this species from natives in Yaveo, but we were unable to discover any trees in this village. In the neighboring town of Santiago Choapam, I heard several references to *Ormosia isthmensis* and to its brilliant vermillion seeds but was unable to make a collection of the tree from this locality. In Lalana, it is known by the Spanish names *palo de Salvador* and *colorín* and by the Chinantec name *mu-sa*, and it is used to some extent for its wood. According to Williams' field notes, the tree is used extensively in the Isthmus for "... axe-handles, railroad ties, house posts and general construction" and "... to a limited extent for canoes".

According to the natives, the flowers of *Ormosia isthmensis* are borne in profusion in July and August and are white and rose-purple in color. The bright seeds are abundant and, later in the season, are very noticeable on the forest floor beneath the trees.

BOMBACEAE

Ochroma pyramidale (*Cav.*) *Urban* var. **concolor** (*Rowlee*) *R. E. Schultes comb. nov.*

Ochroma concolor Rowlee in Journ. Wash. Acad. Sci. 9 (1919) 161.

MEXICO: Tabasco, Villahermosa, 1926, *Martínez s.n.* (U. S. Nat. Herb. No. 1635968); Vera Cruz, Villa Azueta, 1926, *Martínez s.n.* (U.S. Nat. Herb. No. 1315933); Vera Cruz, Fortuño Coatzacoalcos River, alt. 30–50 m., February-March 1937, *Llewelyn Williams 8923*; Oaxaca, District of Juchitlán, Ubero, alt. 30–90 m., June 1937, *Llewelyn Williams 9486*; Oaxaca, District of Juchitlán, Ubero, alt. 30-90 m., May, 1937, *Llewelyn Williams 9236*; Oaxaca, District of Tuxtepec, San José Chiltepec, long. 96°08′, lat. 18°00′, alt. 100 m., April 23, 1939, *Schultes & Reko 692.*

Although it is a very widespread genus in Central America, *Ochroma* has apparently only recently been collected in southeastern Mexico. In his *Trees and shrubs of Mexico* (Contrib. U.S. Nat. Herb. 23 (1926) 1674), Standley stated: "No specimens of *Ochroma* from Mexico have been seen by the writer, but *O. Lagopus* Swartz (= *O. pyramidale* (Cav.) Urban) has been reported from Tabasco. This species is a West Indian one, but it seems probable that one of those described recently by Rowlee occurs in southern Mexico." Later, he wrote (in Field Mus. Nat. Hist. Bot. Ser. 18 (1937) 682): "The Costa Rican trees were referred formerly to *O. Lagopus* Swartz of the West Indies, which probably does not extend to the continent."

In 1903, Conzatti (*Los généros vegetales mexicanos* (1903) 20) reported that *Ochroma Lagopus* existed in the southern part of Mexico. He did not, however, cite specimens. In 1909, Rovirosa (*Pteridografía del sur de*

México (1909) 20) stated that *O. Lagopus* grew in Tabasco. This is apparently the source of Standley's report referred to above.

In 1926, Professor Maximino Martínez of Mexico City sent two specimens of *Ochroma* to Record for determination. He stated in a letter accompanying the collections: "En la literatura de que despongo no se dice que exista en este país, sin embargo de que lo hay con abundáncia en Tabasco y Vera Cruz. No he visto las flores y no he podido determinar la especie." These specimens cited above are apparently the first Mexican collections which are represented in herbaria. In *Las plantas mas utiles que existen en la Republica Mexicana* (1928) 248-250, Martínez pointed out that this genus had been hitherto unknown from Mexico, but that it was now represented in Tecolotepec, Vera Cruz, and from other localities in Tabasco, Oaxaca and Chiapas.

Llewelyn Williams collected specimens of *Ochroma* from the Isthmus of Tehuantepec which are referable to *O. pyramidale* var. *concolor*. He reported his collections (in Lilloa 4 (1939) 157, 166) as *Ochroma concolor* Rowlee. Williams' collections from Ubero are apparently the first from the State of Oaxaca. *Schultes & Reko 692* represents the most northern collection of the variety.

An examination of the collections of *Ochroma* from Mexico indicates that the slight characters which Rowlee used to separate the West Indian *Ochroma pyramidale* from *O. concolor* break down. There has been a general tendency to doubt the specific validity of the numerous Central American "species" of *Ochroma*. For example, Standley stated (in Field Mus. Nat. Hist. Bot. Ser. 18 (1937) 681): "Rowlee, who studied the trees in their native habits, recognized nine species, four of them Central American. I do not believe that there are so many of them in Central America, and it seems far from certain that there is more than one. . ." Likewise, Record, who studied the wood of the American *Bombacaceae*, has observed (in Trop. Woods 59 (1939) 15): "Some botanists claim to recognize 10 or more species but for all practical purposes there is only one, *O. pyramidale* (Cav.) Urban (=*O. Lagopus* Sw.), of which the others are varieties or forms."

Record's observation is borne out by the available specimens of *Ochroma* from southern Mexico. The specimens which have been called *Ochroma concolor* differ somewhat from true *O. pyramidale* of the West Indies, but the differences are trivial and deserve no more than varietal status. *Ochroma pyramidale* var. *concolor* is usually a much larger plant than *O. pyramidale*. *Schultes & Reko 692* was collected from a very tall tree which attains a height of from seventy to eighty feet. The trunk is stout and smooth with a greyish bark. The leaves of the variety tend to be larger, thinner and glabrous or nearly so. The flowers of the two plants are of the same size, but those of the variety are produced two months later than are those of the species. In the District of Tuxtepec, the variety fruits late in April and early May.

Ochroma pyramidale var. *concolor* represents a clearly distinct geographical variety centering around southern Mexico and Guatemala. Rowlee recognized this when he stated: "It is known only from the country surrounding the head of the Bay of Honduras. It has not been reported outside of Guatemala, but undoubtedly grows in adjacent Honduras and British Honduras, and, in all probability, in southern Yucatan."

In the Chinantec village of San José Chiltepec, *Ochroma pyramidale* var. *concolor* is known by the Spanish name *gonote reál* and by the Chinantec name *ma-ho*. It is said to grow in the adjacent parts of the District of Choapam where the Chinantecs call it *mo-ma-ah*.

THEACEAE

Laplacea semiserrata (*Mart. & Zucc.*) *Cambessedes* in St. Hilaire Fl. Bras. Mer. 1 (1825-1827) 300.

MEXICO: Oaxaca, District of Tehuantepec, Ubero, alt. 20-90 m., April 1937, *Llewelyn Williams 9170*; District of Choapam, between Monte Negro de Lalana and San Juan Lalana, long. 95°45′, lat. 17° 26′, alt. 450 m., May 6, 1939, *Schultes & Reko 798*.

Although *Laplacea semiserrata* is rather widespread, occurring throughout Central America and in South America southward to Brazil, it is known from Mexico from only two collections. In his *Flora of Costa Rica* (Field Mus. Nat. Hist. Bot. Ser. 18 (1937) 702), Standley stated that the occurrence of this species in Mexico was open to question. Since that time, however, the two collections which are cited above have established the presence of *L.semiserrata* in the lowland tropical forests of eastern Oaxaca. The localities of these collections lie in adjacent districts.

The collection, *Llewelyn Williams 9170*, which has been labelled "*Laplacea Williamsii* Standl. sp. nov.", (a *nomen nudum*), is the basis of Williams' reference to *Laplacea Williamsii* Standley in his *Arboles y arbustos del istmo de Tehuantepec* (in Lilloa 4 (1939) 145). I have examined an isotype from this collection and find that it is referable to *L.semiserrata* (Mart. & Zucc.) Cambess.

ARALIACEAE

Oreopanax capitatum (*Jacq.*) *Planchon & Decaisne* in Rev. Hort. 1854 (1854) 108.

MEXICO: Oaxaca, District of Choapam, Santiago Choapam, long. 95°55′, lat. 17°20′, alt. 1000 m., May 13, 1939, *Schultes & Reko 907* (Econ. Herb. Oakes Ames No. 5833; Herb. Gray).

This collection was cited (in Bot. Mus. Leafl. Harv. Univ. 9 (1940) 27) as *Oreopanax platyphyllum* Marchal, but Dr. A. C. Smith of the Arnold Arboretum, who is monographing this genus, has called my attention to the fact that it appears to be an unusual form of *O. capitatum.* Dr. Smith writes in part: "It is a difficult plant to place and is probably best left in *O. capitatum*, a widespread and variable species, with some specimens of which it is a fair match. It differs from the usual West Indian and Mexican form by its suggestion of rhomboid leaf-blades, its comparatively small inflorescence, and its subsessile heads, but all of these characters are to be found in *O. capitatum* sens. lat., although seldom in combination.

"The leaf-shape, except for the acuminate rather than rounded apex, is suggestive of *O. guatemalensis* (Lem.) Dec. & Pl., a species with usually only 3–5 fruits per head. *No. 907* also suggests *O. Sanderianum* Hemsl., but the leaf-blades are hardly sufficiently broad to be considered representative of that species.

"It is probable that the two species mentioned above are recently developed segregates from *O. capitatum*, with which they still show intermediate stages. *No. 907* is less conspicuously different from the basic species and in my opinion is not worthy of nomenclatural recognition."

ERICACEAE

Gaultheria acuminata *Chamisso & Schlechtendal* var. **Rekoi** *Camp var. nov.*

A specie ramulis et inflorescentiae rhachide et bracteis sparse glanduloso-pubescentibus differt.

MEXICO: Oaxaca, District of Teotitlán, road between Teotitlán del Camino and Huautla de Jiménez, long. 96°53′, lat. 18°10′, alt. 1400 m., August 2, 1938, *Richard Evans Schultes & Blas Pablo Reko 374*, (TYPE in Herb. N.Y. Bot. Gard.).

In a recent letter, Dr. Camp has written: "The scattered glandular pubescence on the twigs, rachis and bracts of the inflorescence of *Gaultheria acuminata* var. *Rekoi* serves adequately to separate it from *G. acuminata* as well as from *G. acuminata* var. *nitida* (Benth.) Camp. Judging from the glandular pubescence of the inflorescence axis, it would seem that *Gaultheria acuminata* var. *Rekoi* represents a form somewhat intermediate between *G. acuminata* and the recently described *G. Pringlei* Camp, which is also from the State of Oaxaca. The new variety may be distinguished from *Gaultheria Pringlei* by the lack of gland-hairs on its corollas. The presence of these gland-hairs on the corollas is a diagnostic character of *Gaultheria Pringlei* which serves to separate it from *G. acuminata*."

The fruits of *Gaultheria acuminata* var. *Rekoi* are used as food by the Mazatec Indians of Huautla de Jiménez, who call the plant *ya-to-skwa-ree*, and its fruit *to-skwa*.

Gaultheria Schultesii *Camp sp. nov.*

Frutex usque ad 0.7 m. altus, ramulis albido-puberulis et sparse glanduloso-pubescentibus. Folia caulis principalis subrotundata vel late ovata, 1.5–2 cm. longa; folia ramorum floriferorum oblonga vel ovalia, 1–3 cm. longa, 0.6–1 cm. lata, subcoriacea, supra venis albido-puberulentibus exceptis glabra, subtus punctata, margine serrulata (serraturis minute glandulosis), petiolo 1–2 mm. longo. Flores axillares, solitarii in summo ramulorum digesti; pedicellis dense albido-puberulis et sparse glanduloso-pubescentibus, 4–8 mm. longis; bractea albido-puberula, margine ciliata; corolla globoso-urceolata, rosea, hirsuta, circa 7 mm. longa, apice contracta et quinque lobata, lobis circa 1 mm. longis; calyx quinquelobatus, lobis circa 2 mm. longis, glabris, margine ciliatis; stamina decem, filamentis circa 2.5 mm. longis, basi dilatatis et subcarnosis, pubescentibus, antheris circa 1.5 mm. longis, quadricornutis; ovarium globosum, puberulum; stylus glaber.

Gaultheria Schultesii is a graceful shrub sometimes reaching the height of 0.7 meter and generally growing in rocky areas. The branches are white-puberulent and bear scattered gland-hairs. On the main stem the leaves are almost round or occasionally broadly ovate and 1.5–2 cm. long; on the flowering branches the leaves are oblong to oval, 1–3 cm. long and 0.6–1 cm. wide, basally subcordate to truncate (rarely obtuse) and apically obtuse (rarely acutish). The upper surface of the leaves is glabrous except for a minute puberulence on the veins; the lower surface is punctate, the punctations representing the bases of early deciduous hairs; the margin is minutely glandular-serrate. The flowers are solitary in the axils at the ends of the branches, their pedicels white-puberulent and sparsely glandular-pubescent. The corolla is globose-urceolate and pink or red in color, hirsute, about 7 mm. long and apically contracted. Except for the ciliated margin, the 5-lobed calyx is glabrous. There are ten stamens, the filaments are pubescent and about 2.5 mm. long, basally dilated and subcarnose; the anthers are about 1.5 mm. long and bear four awns. The ovary is puberulent at anthesis. From material other than the type, it would appear that the mature fruit is black-purple at maturity and gaultherioid in structure.

Mexico: Oaxaca, District of Ixtlán, Cerro Cuasimulco near San Pedro Yolox, long. 96°25′, lat. 17°44′, alt. 2600-2700 m., June 24, 1939, *Richard Evans Schultes 678* (Type in Herb. N.Y. Bot. Gard.); District of Villa Alta, half way to the summit of Cerro Zempoaltepetl, long. 96°04′, lat. 17°10′, alt. 2500-2800 m., May 25, 1939, *Richard Evans Schultes 517* (Econ. Herb. Oakes Ames No. 6116; Herb. N.Y. Bot. Gard.); District of Villa Alta, at the summit of Cerro Zempoaltepetl, February 19-27, 1937, *W.H.Camp 2659*, *sheet II pars* (Herb. N.Y. Bot. Gard.).

In connection with the description of *Gaultheria Schultesii*, Dr. Camp writes: "*Gaultheria Schultesii* is, like many others of this group, subject to a certain variability in height of plant and size of leaf, specimens other than the type varying from over a meter (*Schultes 517*: a "shrub to four feet") to as low as 2 dm. (*Camp 2659* Sheet II pars). Of greater interest, however, is the fact that this new species does not properly belong in the genus *Gaultheria sensu stricto.* I collected it myself on Cerro Zempoaltepetl in 1937. At that time, I thought it to be only a much reduced and possibly depauperate form of the plant later described as *G. Conzattii* Camp var. *mijorum* Camp. It is now evident, however, that this is not the case; that my previous disposition of this material was an error; and that it should be separated from *G. Conzattii* var. *mijorum* and be given specific rank.

"This new species—*Gaultheria Schultesii*—has been placed in *Gaultheria* tentatively, until such time as the entire *Gaultheria-Pernettya* complex can be more carefully studied. The inflorescence of *G. Schultesii* would relate it more closely to *Pernettya* than to *Gaultheria.* It has not been placed in the recently described hybrid genus × *Gaulthettya* because, from the material now available, it would appear not to be a casual and recent hybrid between species of the two genera but, rather, a genetically stabilized entity, having arisen as a segregate from some previous chance hybrid between species of these two genera. A number of South American species which have traditionally been placed in *Gaultheria* would seem to have much the same type of ancestral background. The material of *Gaultheria Schultesii* which I collected on Cerro Zempoaltepetl in 1937 indicates that the fruit is typically gaultherioid and not intermediate as is often the case with many of these bigeneric hybrids."

The fruits of *Gaultheria Schultesii* are used as food by the Chinantec and Mije Indians. The Mije name of the plant is *tzinutpe*; the Spanish, *capulincillo del diablo.*

Ardisia Rekoi *Lundell sp. nov.*

Frutex vel arbor parva; ramuli graciles, novelli glanduloso-puberuli. Petioli 0.8–1.5 cm. longi. Lamina membranacea, oblanceolata vel oblonga, 7–15 cm. longa, 2.2–5.5 cm. lata, apice acuminata, basi acuta vel subacuminata, supra glabra, subtus parce glanduloso-puberula, acute serrata. Inflorescentiae terminales, pyramidales, glanduloso-puberulae; flores umbellati. Pedicelli 3–4 mm. longi, glanduloso-puberuli. Sepala quinque, glanduloso-puberula et glanduloso-ciliolata, punctata, anguste ovato-oblonga, fere 2 mm. longa. Corolla 5–5.5 mm. longa, punctata. Filamenta glanduloso-pilosa.

A shrub or small tree; branchlets slender, at first densely glandular-puberulent with minute reddish hairs. Petioles canaliculate or narrowly winged, glabrous in the groove, glandular-puberulent elsewhere, 0.8 to 1.5 cm. long. Leaf-blades membranaceous, slightly paler beneath, oblanceolate or oblong, 7 to 15 cm. long, 2.2 to 5.5 cm. wide, apex long-acuminate (the acumen entire, often subfalcate, up to 1.8 cm. long) base entire, acute or subacuminate, decurrent, the margin elsewhere conspicuously serrate with numerous erect acute teeth, sparsely red glandular-puberulent beneath, glabrous above except for a few minute scattered hairs along midvein, the costa impressed above, elevated beneath, primary veins seven to fourteen on each side, inconspicuous above, evident beneath. Inflorescence terminal, paniculate, the panicles pyramidal, bright red, somewhat shorter than the leaves, glandular-puberulent; flowers umbellate; bracts and bractlets small, ligulate, obtuse, glandular-puberulent, early deciduous. Pedicels rather stout, glandular-puberulent, 3 to 4 mm. long. Flower buds about 5 mm. long. Sepals five, rather sparsely glandular-puberulent, the margins hyaline and glandular-ciliolate, red-punctate, narrowly ovate-oblong, about 2 mm. long, obtusish. Corolla 5–5.5 mm. long, glabrous outside, shortly glandular-pilose within at base; petals five, united at base, ovate, strongly reflexed at anthesis, red-punctate. Anthers about 2.3 mm. long, lanceolate, attenuate to a short subulate apex, red-punctate dorsally. Filaments glandular-pilose, stout, subequaling the anthers. Ovary punctate, ovoid, glabrous. Style 3.5 mm. long, slender.

MEXICO: Oaxaca, District of Teotitlán, barranca Nin-du-da-gé, San Antonio Eloxochitlán, a small tree, long. 96°45′, lat. 18°21′, alt. 1100 m., July 24, 1938, *Richard Evans Schultes & Blas Pablo Reko 273* (TYPE in Herb. Univ. Michigan); District of Teotitlán, Cerro de los Frailes, a small shrub, 2 m. tall, in dense rain forest, alt. 1800 m., August 2, 1938, *Schultes & Reko 388* (Econ. Herb. Oakes Ames No. 7121); District of Teotitlán, barranca Nin-du-da-gé, San Antonio Eloxochitlán, a small tree 12–15 feet tall, in forest near arroyo, July 6, 1939, *Schultes 792* (TOPOTYPE in Econ. Herb. Oakes Ames No. 8445).

Dr. Lundell writes: "*Ardisia Rekoi* is a remarkably distinct species clearly allied to *A. nigrescens* Oerst. of the subgenus *Icacorea.*"

The Mazatec Indians of San Antonio Eloxochitlán report that the small fruits of *Ardisia Rekoi* are edible. The plant is referred to by the Spanish name *capulín* and by the Mazatec name *shka-na-tau.*

Parathesis Schultesii *Lundell sp. nov.*

Frutex, ramulis ferrugineo-tomentosis. Folia integra, membranacea vel subchartacea, oblanceolata, 7.5–13 cm. longa, 2–3.5 cm. lata, apice attenuata, obtusa, basi acuta, utrinque ferrugineo-pubescentia; petiolis usque ad 7 mm. longis. Inflorescentiae paniculatae, pauciflorae, axillares, ferrugineo-tomentosae. Pedicelli 7–12 mm. longi. Sepala lanceolato-subulata, circa 2 mm. longa. Fructus pubescentes.

A tall shrub, branchlets slender, ferruginous-tomentose with stalked stellate hairs. Petioles tomentose, canaliculate, up to 7 mm. long. Leaf blades essentially entire, membranous or subchartaceous, oblanceolate, 7.5 to 13 cm. long, 2 to 3.5 cm. wide, apex attenuate and subacuminate, the acumen long and obtuse, base attenuate and acute, pilose above, stellate-pubescent beneath with ferruginous stalked hairs, the pubescence densest along costa and veins, costa and primary veins slightly impressed above, rather conspicuous beneath. Inflorescence paniculate, strictly axillary, few-flowered, less than half as long as the leaves, the rachis and branches very slender, weak, ferruginous-tomentose. Fruiting pedicels slender, pubescent, 7 to 12 mm. long. Persistent sepals short, connate at base, lanceolate-subulate, about 2 mm. long, hirtellous outside. Fruits drying red, ovoid-globose, up to 8 mm. in diameter, persistently pubescent over the entire surface; style hairy at base.

MEXICO: Oaxaca, District of Choapam, Cerro Caracól, near San Juan Lalana, a tall shrub in forest, long. 95°45′, lat. 17°25′, alt. 1100 m., May 11, 1939, *Richard Evans Schultes & Blas Pablo Reko 862* (TYPE in Herb. Univ. Michigan).

Dr. Lundell writes: "The species is well marked and appears to be nearest ***P. Rekoi*** Standl., also of Oaxaca. ***P. Rekoi***, according to description, has considerably wider leaves, a glabrous ovary, and much larger many-flowered inflorescences. The fruits of ***P. Schultesii*** are persistently hairy; hence the ovary probably is pubescent."

Parathesis tenuis *Standley* in Contrib. U.S. Nat. Herb. 23 (1924) 1111.

MEXICO: Oaxaca, District of Choapam, Cerro Caracól, between San Juan Lalana and Santo Domingo Latani, long. 95°45′, lat. 17°26′, alt. 1400-1650 m., May 11, 1939, *Schultes & Reko 865* (Econ. Herb. Oakes Ames No. 6217; Herb. Gray).

Standley described this species of *Parathesis* on the basis of one collection which Liebmann made almost a century ago. The precise locality of this collection (*Liebmann 14*) is unknown, but Standley believed that it was "collected somewhere in southern Mexico, probably in Oaxaca or Vera Cruz". It is very probable that the collection was made in northeastern Oaxaca—where Liebmann made some of his most extensive and valuable collections. *Schultes & Reko 865* represents apparently the second collection which has been made of this rare species.

An examination of the isotype of *Parathesis tenuis* which is in the Gray Herbarium indicates that it agrees strikingly in all details with *Schultes & Reko 865*. On the basis of field notes and an examination of the numerous specimens which constitute *Schultes & Reko 865*, the following amplified description and drawing of *Parathesis tenuis* is offered.

Arbor parva, tenuis, usque ad quindecim pedes alta. Folia alterna, elliptica, integra, valde et obtuse longe-acuminata, cuspidata. Petiolus 3–9 mm. longus. Inflorescentia terminalis, subcorymbosa, foliis brevior, paucos flores ferens; bracteae minutissimae, lineares, obtusae. Sepala elongato-triangularia, acutiuscula, basi connata, minute puberula, fulva. Petala lanceolata, acutiuscula, basi breviter connata, intus alba glandulosis cum pilis, extus circiter sex lineas latas ornata, anthesi explanata, apicibus valde reflexis antheras exhibentibus. Filamenta glabra. Antherae lineares, petalis breviores, aureae. Ovarium punctatum, puberulum, ovoideum. Stylus tenuissimus, apice saepissime recurvatus, anthesi exsertus et persistens. Fructus ignotus.

A small, slender tree up to 15 feet tall with weak, minutely brown-tomentulose branches. Leaves alternate, elliptic, strongly and obtusely long-acuminate, entire, cuspidate, cuneate at the base, thin, 3.5–6 cm. long, 1–2 cm. wide; mid-vein prominent, secondary veins pinnate, prominulous. Petiole 3–9 mm. long. Inflorescence terminal, subcorymbose, shorter than the leaves, few- (up to eight) flowered, on a long, filiform peduncle. Pedicels filiform, 5–9 mm. long, ferruginous, cylindrical. Bracts very minute, linear, obtuse, less than 1 mm. long, 0.25 mm. wide. Buds about 2.5 mm. long, minutely tomentulose, predominantly brownish. Sepals elongate-triangular, acutish, connate at the base, about 1.5 mm. long, 0.5 mm. wide at the base, minutely puberulent, brown. Petals lanceolate, acutish, 3.5 mm. long, 1 mm. wide, shortly connate at the base, interiorly whitish and clothed with glandular hairs, exteriorly marked by about six broad brown lines, at anthesis explanate with the apex very strongly reflexed, exposing the anthers. Filaments glabrous, 1.25 mm. long. Anthers linear, 2 mm. long or less, shorter than the petals, bright yellow. Ovary punctate, puberulent, ovoid. Style 2.5 mm. long, very slender, usually bent at the apex, at anthesis exserted, persisting. Fruit unknown.

This interesting species of *Parathesis* is very frequent in the dark, damp, cool rain-forests on the northern and eastern slopes of Cerro Caracól between the villages of San Juan Lalana and Santo Domingo Latani. Apparently it does not occur widely in northeastern Oaxaca. It is notable because of the small size of all its parts.

The floral coloration of *Parathesis tenuis* is peculiar. The petals are brown and white, while the stamens are brilliant yellow. The petals are strongly reflexed at anthesis exposing the brilliant stamens which constitute the conspicuous part of the flower.

The Chinantec Indians of this region called the tree *ma-ku-lai*, the meaning of which could not be ascertained. The fruits are said to be small, but they are used as a source of food by the natives inasmuch as the trees are abundant and bear profusely. According to reports, the fruits are agreeable to the taste in spite of the fact that they are rather acid.

SAPOTACEAE

Bumelia eloxochitlensis *R. E. Schultes & C. Conzatti sp. nov.*

Arbor. Folia elliptica, acuminata, subcoriacea, utrinque glabra, breviter petiolata. Ramuli glabri, spinosi. Flores parvi, fulvi, fasciculati. Sepala quinque, subaequalia, ovata, extus dense ferrugineo-pubescentia. Petala ovata, apice rotundata, margine membranacea inaequali duabus cum appendicibus parvis. Staminodia petaloidea, elliptica, margine inaequaliter laciniata et membranacea. Stamina conspicua. Ovarium globosum, dense pubescens, apice stylum carnosum glabrumque ferens. Fructus ignotus.

A tree about 25 feet tall with spreading branches. Leaves elliptic, apically acuminate, basally acute, mostly 6–8.5 cm. long, 2–2.8 cm. wide, subcoriaceous, glabrous on both sides, lustrous above. Petioles short, about 8–10 mm. long. Branchlets glabrous, armed with a few short spines which are 6–9 mm. long. Flowers small, yellow-brown, in loose lateral and axillary fascicles up to 12-flowered; pedicels 8–12 mm. long, ferruginous-pubescent. Sepals five, subequal, ovate; the outer three apically subacute, 1.2 mm. wide, 3 mm. long, externally densely ferruginous-pubescent; inner two slightly wider, apically subrotund, externally ferruginous-pubescent. Petals ovate, apically rotund, with irregular membranaceous margins, 2.9–3.1 mm. long, each with two small infolded appendages. Staminodia petaloid, elliptic with irregularly laciniate and membranaceous margins. Stamens large; filaments fleshy, 1.5 mm. long; anthers 2 mm. long. Ovary globose, 1 mm. in diameter, densely pubescent with white hairs which are 0.8 mm. long, surmounted by a glabrous fleshy tapering style about 3 mm. long, exserted in bud. Fruit unknown.

MEXICO: Oaxaca, District of Teotitlán, in barranca Nin-du-da-gé, San Antonio Eloxochitlán, long. 96°45′, lat. 18°12′, alt. 1000 m., July 6, 1939, *Richard Evans Schultes 791* (TYPE in Econ. Herb. Oakes Ames No. 8988; ISOTYPES in Herb. Conzatti; Herb. Gray; Herb. Inst. Biol. [Mexico]).

Bumelia eloxochitlensis appears to be very closely related to *B. persimilis* Hemsley of Vera Cruz, a rare plant which, so far as I have been able to ascertain, has not been found again since the type collection was made. I have examined an isotype of *Bumelia persimilis* which is in the United States National Herbarium and find that it differs from *B. eloxochitlensis* chiefly in having apically obtuse or very rarely subacute, instead of long acuminate, leaves. The leaves of *Bumelia eloxochitlensis* are larger and the flowers appear to be grouped in looser fascicles. There are also minor differences in the flowers which serve to distinguish between the two; the most important floral differences are in the size and shape of the anthers and petals.

In its habit, *Bumelia eloxochitlensis* is very similar to *Dipholis salicifolia* (L.) A. DC., but it is armed with small woody spines whereas *D. salicifolia* is unarmed.

The small fruits of *Bumelia eloxochitlensis* are borne in great abundance and are said by the Mazatecs of San Antonio Eloxochitlán to be eaten. They are reported to be sweet and mucilaginous and to possess diuretic properties if eaten in quantity. The tree is known by the Spanish names: *tempiste* and *zapotillo bravo*; and by the Mazatec name: *ya-ntsin-tsu*.

GENTIANACEAE

Leiphaimos aphylla (*Jacq.*) *Gilg* in Engler Nat. Pflanzenfam. 4, abt. 2 (1895) 104.

MEXICO: Oaxaca, District of Choapam, San Juan Teotalcingo, long. 95°51′, lat. 17°18′, March 25, 1919, *Reko 4150*; District of Choapam, San Juan Lalana, long. 95°45′, lat. 17°25′, alt. 700 m., May 9, 1939, *Schultes & Reko 835*.

This small, bright yellow root-parasite is apparently very local and has been collected in Mexico only twice, both times in the District of Choapam. Indeed San Juan Teotalcingo and San Juan Lalana are almost adjacent towns.

Schultes & Reko 835 occurred on the same roots with the parasitic *Apteria aphylla* (Nutt.) Barnh. of the *Burmanniaceae* (*Schultes & Reko 834*) which, like *Leiphaimos aphylla*, has not been collected in any other section of Mexico.

There is one other species of *Leiphaimos* in Mexico—*L. parasitica* Cham. & Schlecht. This is represented in the United States National Herbarium by two collections, one from Vera Cruz, the other from Quintana Roo.

APOCYNACEAE

Prestonia guatemalensis *Woodson* in Ann. Mo. Bot. Gard. 23 (1936) 339.

MEXICO: Oaxaca, District of Choapam, Monte Negro de Lalana, long. 95°55′, lat. 17°35′, alt. 150 m., May 3, 1939, *Schultes & Reko 747* (Econ. Herb. Oakes Ames No. 7113).

Hitherto, *Prestonia guatemalensis* has been known only from Guatemala.

GESNERIACEAE

Alloplectus strigosus (*Oerst.*) *Hanstein* in Linnaea 34 (1865-66) 374.

MEXICO: Oaxaca, District of Choapam, in forests along Río Chiquíto, near town of Río Chiquíto, long. 96°02′, lat. 17°40′, alt. about 150 m., May 1, 1939, *Schultes & Reko 724*.

Hitherto, this beautiful epiphytic shrub has been known apparently from only three collections, all of which were cited in the original description. According to the citations, these collections were made in 1842 by Liebmann in the Chinantla of northeastern Oaxaca very close to the locality of *Schultes & Reko 724*.

ACANTHACEAE

Chileranthemum trifidum *Oersted* in Vidensk. Meddel. Kjöbenhavn 1854 (1854) 166.

MEXICO: Oaxaca, District of Tuxtepec, San José Chiltepec, long. 96°08′, lat. 18°00′, alt. 150 m., April 11, 1939, *Schultes & Reko 577* (Econ. Herb. Oakes Ames No. 9649).

Apparently, this rare shrub has not hitherto been collected in the State of Oaxaca. The type collection was made in Vera Cruz.

Ruellia stemonacanthoides (*Oerst.*) *Hemsley* in Godman & Salvin Biol. Centr.-Am. Bot. 2 (1882) 507.

MEXICO: District of Choapam, near Río Chiquíto, long. 96°02′, lat. 17°38′, alt. about 150 m., May 2, 1939, *Schultes & Reko 739*; Tabasco, June 19-25, 1939, *Matuda 3472*.

Schultes & Reko 739 and *Matuda 3472* are apparently the first Mexican collections of *Ruellia stemonacanthoides* from outside of the Yucatan Peninsula. According to Leonard (in Bot. Maya Area: Misc. Pap. 10 (1936) 206), this species is known from Campeche, British Honduras, Guatemala, and Costa Rica. It is very infrequent in northeastern Oaxaca.

Ruellia Harveyana *Stapf* in Bot. Mag. 139 (1913) pl. 8485.

MEXICO: Oaxaca, District of Choapam, Monte Negro de Lalana, long. 95°52′, lat. 17°40′, alt. about 200 m., May 3, 1939, *Schultes & Reko 767*.

Leonard (in Bot. Maya Area: Misc. Pap. 10 (1936) 204-205) states that *Ruellia Harveyana* is known only from Guatemala and British Honduras. *Schultes & Reko 767*, therefore, extends the range of this species northwestward, placing it in Mexico for the first time.

RUBIACEAE

Faramea Schultesii *Standley sp. nov.*

Arbuscula omnino glabra, ramis gracillimis in sicco nigris et striatis, superioribus 1.5 mm. crassis, internodiis brevibus; stipulae brevissime coalitae fere semiorbiculares, 1.5 mm. longae, apice obtusissimae et in setam erectam rigidam 4–6 mm. longam contractae; folia inter minora, breviter petiolata, in sicco fusca, valde membranacea, petiolo tenui 4–9 mm. longo; lamina angustissime lanceolato-oblonga, 9–10.5 cm. longa, 18–21 mm. lata, longissime et anguste attenuato-acuminata acumine ipso obtuso, basi acute angustata, supra in sicco sublucida, costa nervisque prominulis, subtus concolor, costa tenerrima prominenti, nervis lateralibus utroque latere circa decem tenerrimis obscuris angulo fere recto abeuntibus brevibus irregularibus prope marginem conjunctis, venulis obscuris laxe reticulatis; flores visi (an normales?) ex axillis superioribus nascentes, solitarii, pedicellis gracillimis usque ad 2 cm. longis, sursum paullo dilatatis; hypanthium brevissimum, in pedicellum sensim attenuatum, calyce vix ultra 1 mm. longo, profunde dentato; corolla extus glabra, tubo gracili cylindraceo 2 cm. longo, 1.5 mm. crasso cum fauce glabro, lobis quattuor lanceolato-linearibus intus glabris anguste obtusis circa 13 mm. longis.

A shrub or small tree, glabrous throughout, the branches very slender, black and striate when dry, the terminal ones 1.5 mm. thick, the internodes short; stipules very shortly connate, almost semiorbicular, 1.5 mm. long,

very obtuse at the apex and abruptly contracted into a rigid, erect seta 4–6 mm. long; leaves small, fuscous when dried, short-petiolate, thick-membranaceous, the slender petiole 4–9 mm. long; blades very narrowly lance-oblong, 9–10.5 cm. long, 1.8–2.1 cm. wide, long and narrowly attenuate-acuminate, the tip obtuse, acutely narrowed at the base, somewhat lustrous above when dry, the costa and nerves prominulous, concolorous beneath, the costa very slender, prominent, the lateral nerves about ten on each side, very slender and inconspicuous, diverging at almost a right angle, united near the margin, the ultimate veins inconspicuous, laxly reticulate; flowers (normally?) solitary in the upper leaf axils, the very slender pedicels 2 cm. long or shorter, slightly dilated toward the apex; hypanthium very shortly and gradually attenuate into the pedicel; calyx scarcely 1 mm. long, deeply dentate; corolla glabrous outside, the very slender tube terete, 2 cm. long, 1.5 mm. thick, the throat glabrous, the four lobes lance-linear, glabrous within, narrowly obtuse, about 13 mm. long.

MEXICO: Oaxaca, District of Choapam, Cerro de Lalana, near San Juan Lalana, in forest, long. 95°45′, lat. 17°25′, alt. 1300 m., May 11, 1939, *Richard Evans Schultes & Blas Pablo Reko 855* (TYPE in Herb. Field Mus. Nat. Hist.).

Dr. Standley has written in connection with the foregoing description: "The single specimen seen is not in satisfactory condition for study, and it is possible that the inflorescence has been interpreted incorrectly. At any rate, the collection represents a quite distinct species, differing widely from the few other Mexican ones in its narrow leaves."

The fruits of *Faramea Schultesii* are rather bitter and astringent and are said by the Chinantec Indians to be used to cure sores of the mouth and tongue. The tree is called *ma-la* by the Chinantecs of San Juan Lalana.

EXPLANATION OF THE ILLUSTRATIONS

PLATE I. CARLUDOVICA LABELA *R.E.Schultes.* 1, habit of the plant, one fourth natural size. 2, leaf, one fourth natural size. 3, female inflorescence (somewhat diagrammatic), enlarged about one and one half times. 4, female flower, enlarged about two and one half times. 5, male inflorescence, enlarged about one and one half times.

Drawn by GORDON W. DILLON

PLATE II. GUATTERIA GALEOTTIANA *Baillon.* 1, flowering and fruiting branch, one half natural size. 2, flower, about natural size. 3, petal (exterior), enlarged about two times. 4, sepal (exterior), enlarged about two times.

Drawn by RICHARD EVANS SCHULTES

PLATE III. PHOEBE CHINANTECORUM *R. E. Schultes.* 1, flowering branch, one half natural size. 2, flower (the ovary omitted), enlarged five times. 3, diagram of the flower with the anthers removed (the location of the anthers shaded), enlarged ten times. 4, anther of the outer series, enlarged ten times. 5, anther of the inner series, enlarged ten times.

Drawn by GORDON W. DILLON

PLATE IV. CONNARUS SCHULTESII *Standley.* 1, fruiting branch, approximately one half natural size. 2, fruit, enlarged approximately one and one half times.

Drawn by GORDON W. DILLON

PLATE V. GAULTHERIA SCHULTESII *Camp.* 1, flowering branch, natural size. 2, flower, enlarged approximately two and one half times. 3, anther, enlarged approximately five times.

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PLATE VI. ARDISIA REKOI *Lundell.* 1, flowering branch, one half natural size. 2, flower as seen from the side, enlarged about three times. 3, flower as seen from above, enlarged about three times. 4, pistil, enlarged about three times. 5, calyx, enlarged about three times. 6, stamen, enlarged about six times.

Drawn by GORDON W. DILLON

PLATE VII. PARATHESIS SCHULTESII *Lundell.* 1, fruiting branch, one half natural size. 2 and 3, fruit, enlarged approximately six times.

Drawn by GORDON W. DILLON

PLATE VIII. PARATHESIS TENUIS *Standley.* 1, flowering branch, approximately one half natural size. 2, inflorescence, slightly larger than natural size. 3, flower, enlarged approximately five times. 4, pistil, enlarged approximately five times. 5, petal, enlarged approximately five times. 6, sepal, enlarged approximately five times. 7, anther, enlarged approximately five times.

Drawn by RICHARD EVANS SCHULTES

PLATE IX. BUMELIA ELOXOCHITLENSIS *R. E. Schultes & C. Conzatti.* 1, flowering branch, one half natural size. 2, flower as seen from the side, enlarged about five times. 3, view of the corolla (dissected and laid open) as seen from the interior, showing the large petaloid staminodia, the stamens, the appendages of the petals, and the petals, enlarged about five times. 4, idealized drawing of a petal as seen from the exterior, showing (in dotted lines) the two appendages folded in under the petal, enlarged about five times. 5 and 6, stamens, enlarged about five times. 7, pistil, enlarged about five times. 8, inflorescence, about natural size.

Drawn by GORDON W. DILLON